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the largest category), and to miscellaneous parasites and saprophytes, with some discussion of the decay of structural timbers. The Polyporaceae are the greatest devastators of our forests. A useful bibliography is appended.—C. R. B.

Vegetationsbilder.—The third part of the seventh series of KARSTEN and SCHENCK's well-known work[11] presents six plates of the vegetation of the moors, *Bockser* (high plains with dry grasses and sedges), and forest of the northern *Schwarzwald*, with text, by OTTO FEUCHT; the fourth illustrates the sea strand, littoral, sublittoral, and submontane formations on the Dalmatian coast, with text by L. ADAMOVIC; while the fifth pictures the various curious plants characteristic of the Abyssinian highlands.—C. R. B.

NOTES FOR STUDENTS

Taxonomic notes.—O. BECCARI (Phil. Jour. Sci. **3**:339–342. 1908) has described 3 new species and 2 new varieties of ferns from the Philippine Islands.—R. C. BENEDICT (Bull. Torr. Bot. Club **36**:41–49. 1909) records 4 new hybrids in the genus Dryopteris from eastern America.—C. CHRISTENSEN (Rep. Nov. Sp. **6**:380, 381. 1909) records a new species of Dryopteris from Brazil.—A. COGNIAUX (*ibid.* 304–307) publishes 5 new species of orchids from Jamaica.—F. S. COLLINS (Rhodora **11**:17–20. *pl. 78.* 1909) has published 4 new species of the genus Cladophora, and (*ibid.* 23–26) under "Notes on Monostroma" records a new form of *Monostroma orbiculatum* from Massachusetts.—E. B. COPELAND (Phil. Jour. Sci. **3**:343–357. *pls. 1–8.* 1908), under the titles "New genera and species of Bornean ferns," and "New species of Cyathea," has published 20 new species and 2 new genera (*Macroglossum* and *Phanerosorus*).—L. A. DODE (Bull. Soc. Bot. Fr. IV. **8**:648–656. 1908) describes 12 new species and 3 new hybrids of trees and shrubs; these include a Robinia from Colorado and a Salix from New Jersey.—F. EICHLAM (Monats. Kakteenk. **19**:1–5. 1909) characterizes a new species and 4 varieties of Mamillaria from Guatemala, and (*ibid.* 22–25) describes a new species of Pereskiopsis from the same general region.—A. D. E. ELMER (Leafl. Phil. Bot. **2**:445–594. 1908–1909) has described 101 new species and 3 varieties of Philippine plants. A new genus (*Elmeria* Ridl.) of the Zingiberaceae is proposed, and a synopsis of the genus Rubus is given, in which the author recognizes 17 species for the Philippine Islands, 3 being new to science.—A. ENGLER (Bot. Jahrb. **43**:161–198. 1909) has published new species of African plants as follows: 10 in the Olacaceae, 11 in the Opiliaceae, 2 in the Octoknemataceae, 11 in the Icacinaceae, and 13 in the Aizoaceae.—E. GILG (*ibid.* 97–128), in an article entitled "Balsaminaceae africanae," recognizes 85 species of Impatiens from Africa, and of these 26 are new to science.—M. GÜRKE (*ibid.* 199, 200) records 3 new species of Ebenaceae from Africa, and (Monats. Kakteenk. **19**: 12–14. 1909) describes *Rhipsalis Novaesii* and accompanies the description by illustrations of the flower; the plant is a native of Brazil.—W. HERTER (Bot.

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[11] KARSTEN, G., AND SCHENCK, H., Vegetationsbilder. Series vii, parts 3–5. text and *pls. 13–30.* 4to. Jena: Gustav Fischer. 1909. *M* 4 per part.

Jahrb. **43**: Beibl. No. 98, pp. 1–56), under the title "Beiträge zur Kenntniss der Gattung Lycopodium," has published 48 new species, of which 30 are from the West Indies, Mexico, Central and South America.—J. D. HOOKER (Kew Bull. 1–12. 1909) presents the results of recent studies in the genus Impatiens from Indo-China and the Malayan Peninsula, recognizing for this region 27 species, of which 5 are new to science; a key precedes the enumeration of species.—M. A. HOWE (Bull. Torr. Bot. Club **36**:75–104. 1909) has published 7 new species of the Siphonales, and presents also a synoptical key to the living species of Neomeris.—F. KRÄNZLEIN (Rep. Nov. Sp. **6**:317. 1909) records a new species of Dendrobium from the Philippine Islands.—K. KRAUSE (Bot. Jahrb. **43**:129–160. 1909) has published 40 new species of Rubiaceae from Africa.—E. D. MERRILL (Phil. Journ. Sci. **3**:359–358. 1908) gives a synopsis of the Philippine species of Garcinia, recognizing 17 species, of which 5 are new; the same author (*ibid.* 369–382), under the title "Philippine Ericaceae," presents a consideration of the four genera representing this family in the Philippines, and accompanies Vaccinium (19 species) and Rhododendron (16 species) with determinative keys, characterizing 3 species and one variety as new; further, he gives (*ibid.* 385–442) a list of plants from the Batanes and Babuyanes Islands, describing 16 new species.—E. PAX (Bot. Jahrb. **43**:218–224. 1909), under the title "Euphorbiaceae africanae X," has published 15 species new to science, and proposes 2 new genera (*Holstia* and *Neopycnocoma*); the same author (*ibid.* 75–90) describes 43 species and 4 varieties of Euphorbiaceae as new to science.—J. PERKINS (*ibid.* 214–217) publishes jointly with E. GILG a new genus (*Afrostyrax*) of the Styracaceae; the genus is represented by one species, *A. kamerunensis*, from Kamerun.—R. PILGER (*ibid.* 91–96), under the heading "Gramineae africanae VIII," describes 8 new species of grasses.—J. A. PURPUS (Monats. Kakteenk. **19**:38–41. 1909) describes and illustrates a new species of Cereus from Mexico.—B. L. ROBINSON and M. L. FERNALD (Rhodora **11**:33–61. 1909), under the title "Emendations of the seventh edition of Gray's Manual I," has given an annotated list of corrections, additions, extension of ranges, etc., and includes a new species of Callirhoë from Missouri.—R. A. ROLFE (Kew Bull. 61–66. 1909), in an article entitled "New Orchids: Decade 33," publishes 10 new species, of which 4 are American.—E. ROSENSTOCK (Rep. Nov. Sp. **6**:308–316. 1909) has published 9 species and 4 varieties of ferns as new to science; these are based on collections made by Dr. O. BUCHTIEN in Bolivia.—Different authors (*ibid.* 341–352), under the title "Ex herbario Hassleriano: Novitates paraguarienses I," have published 12 species and 16 varieties of flowering plants as new to science.—F. J. SEAVER (Mycologia **1**:41–76. *pls. 4, 5.* 1909) gives a synopsis of the Nectrieae of North America, recognizing 11 genera and about 40 species, 2 of which are here described for the first time; to the genus Nectria 20 species are referred, and a determinative key precedes their enumeration.—P. C. STANDLEY (Muhlenbergia **5**:46, 47. 1909) proposes a new species of Castilleja from Arizona.—W. WEINGART (Monats. Kakteenk. **19**:17–22. 1909) describes and illustrates a new species of Cereus from Paraguay.—E. O. WOOTON and P. C. STANDLEY (Bull. Torr. Bot. Club **36**:105–112. 1909) have described 11 species and one variety of flowering plants as new to science; these are based chiefly on the collections made in Mexico by O. B. METCALF.—J. M. GREENMAN.

Morphology of Monascus.—BARKER[12] and OLIVE[13] in their investigations of Monascus describe the ascogenous hyphae as arising from an oogonium, which has been fertilized by an antheridium, thus establishing a true sexual process for this form, while KUYPER[14] denies any fusion of sexual cells. IKENO[15] asserts that there are no ascogenous hyphae in Monascus, but that uninucleate cytoplasmic masses arise by free cell formation from the ascogonium, which in turn divide also by free cell formation to form the spores. KUYPER in the main agrees with IKENO as to the absence of sexual cells at the origin of the perithecium, while BARKER and OLIVE hold that the asci arise from the cells of the ascogenous hyphae, which arise from an ascogonium. DANGEARD,[16] however, regards BARKER'S antheridium as a nourishing cell for the ascogonium. According to DANGEARD the ascogonium divides into several cells, each of which gives rise to binucleate cells, which form the asci and whose nuclei fuse.

SCHIKORRA[17] has recently investigated pure cultures of two species of Monascus, *M. purpureus* Went. and an undetermined species, and believes that he has explained the inconsistencies of the above-mentioned authors. The life-history of both these species is similar. The female organ arises as a multinucleate subterminal cell of a hypha. This cell later divides into a trichogyne and oogonium. The apical cell is a multinucleate antheridium and fuses with the trichogyne, into which the male nuclei pass by means of a pore. There is an evident gap in observations at this point and the author next describes the male and female nuclei as arranged in pairs in the ascogonium. From the hypha below the sexual organs investing hyphae arise, which form a two-layered perithecial wall. Ascogenous hyphae originate from the fertilized oogonium. These hyphae contain nuclei in pairs, which multiply by conjugate divisions, although no such divisions are figured. The asci are formed from the subterminal cells

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[12] BARKER, P. T. B., The morphology and development of the ascocarp of Monascus. Annals of Botany **17**:167–236. 1903.

[13] OLIVE, E. W., The morphology of *Monascus purpureus*. BOT. GAZETTE **39**: 50–60. 1905.

[14] KUYPER, H. P., Die Peritheciumentwicklung von *Monascus purpureus* Went. und *Monascus Barkeri* Dang., so wie die systematische Stellung dieser Pilze. Ann. Mycol. **3**:32–81. 1905.

[15] IKENO, S., Ueber die Sporenbildung und systematische Stellung von *Monascus purpureus* Went. Ber. Deutsch. Bot. Gesells. **21**:259–269. 1903.

[16] DANGEARD, P. A., Recherches sur développement du périthèce chez les Ascomycètes. Le Botaniste **10**:177, etc. 1907.

[17] SCHIKORRA, W., Ueber die Entwicklungsgeschichte von Monascus. Zeits. Bot. **1**:379–410. 1909.